

## BOOK REVIEWS

### Butterflies

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**The Monarch Butterfly: International Traveler.**—Fred A. Urquhart. 1987. Nelson-Hall, Chicago, 232 pp.

Fred Urquhart began studying *Danaus plexippus* in 1927. Few biologists have had so long a love affair with a single species. Like so many lovers, however, Urquhart became so possessive toward the object of his affections that he claimed exclusive rights to it. In science as in life, therein lie the seeds of trouble. Uninitiated readers will come away from this book thinking that everything we truly know about the Monarch is due to Fred and Norah Urquhart and their associates. Any contribution from unnamed outsiders is invariably a misinterpretation or an error. By failing to place the Monarch in a comparative context, Urquhart creates the impression that it is more unusual or distinctive than it is; even in a popular book like this—albeit with scientific pretensions!—his failure to mention Ackery and Vane-Wright's *Milkweed Butterflies* is nothing short of appalling. It is also typical of what is wrong with this book.

There is no doubt that it was Urquhart's career-long tenacity that led to the discovery of the Monarch's Mexican wintering grounds. That is his great achievement, and he should be proud of it. He has been a meticulous observer and an effective popularizer of his brand of natural history. His outlook has been shaped by a strong dose of Scottish Realism—a profound distrust of “experts” and authority generally, a preference for common sense over theory, and a drive to generate tangible results. These are admirable qualities unless mixed up with obstinacy and obdurateness, as they are here. In “part 9” of this book, entitled “Monarch-Viceroy Mimicry and Bird Predation—Fact or Fiction?” he quotes a set of antique (50–75 years) anti-mimicry-theory authorities, questions the appropriateness of any captive-bird experimentation at all, comes very close to calling certain well-known photographs fraudulent, and acts as if chemical ecology generally were an exercise in fatuous wish-fulfillment. In Scots-Realist style, he invites the reader to see for himself if birds actually attack Monarchs, and draw his own conclusions. Many readers will probably take up the challenge and in consequence conclude that Urquhart is correct in his defiance of an orthodoxy whose spokesmen he does not deign to name. There are in fact both methodological and conceptual problems with that orthodoxy, but the entire chemical-behavioral-ecological corpus is much too large to be blown away by Urquhart's rhetorical posturing, except among those predisposed to his “populist” notion of science. I suppose we should be grateful that he at least accepts biological evolution as credible.

Another distinctive Urquhartism is the coinage of unnecessary jargon, much in the manner of the ecologist Frederick Clements, who called a spade a geotome. In this book we find such florid Fredisms as “exuvial holdfast tubercles,” “semi-exar-

ate,” “posculum and patella,” “transient hibernal roosting loci,” etc. On p. 51 he says “In scientific publications the gold spots (of the pupae) are referred to as ‘prismatic pigmented maculae’ ”—not bothering to add that he is the only one doing the referring. On p. 122 he defends his coinage “alar tagging” by saying the word “alar” is “well-known among scientists working in many different languages.” (So is “wing.”) In the caption to plate 4, he uses the familiar word “prepupa” in a new and totally unwarranted sense to refer to the untanned pupa *after* molting. And so on.

For a hard-headed anti-theoretician, Urquhart indulges in such vapors as this: “Eventually through some evolutionary process, the east-west movement was incorporated into the monarch’s genetic code to produce a cyclical migration related to some as yet unknown response to seasonal changes on the planet” (p. 120). No French Structuralist could say less in so many words. His quantitative sophistication is demonstrated by the out-of-context and utterly meaningless egg-distribution data presented on p. 89 (under the misspelled heading “ovaposition”). This is a statistically difficult subject, which Urquhart handles by ignoring statistics altogether.

The book contains numerous errors, some trivial, some significant, all of them annoying. San Luis Potosí, with at least 300,000 people, is not a “small village” in Mexico (p. 154). The roosting tree of the Mexican winter sites is the Oyamel, *Abies religiosa*—a fir and not a “spruce” as Urquhart always calls it (p. 156 ff.). Braconids are not “bees” by any reasonable definition (plate 20, caption). And so on. After a lifetime studying the Monarch, why does Urquhart claim in the caption of his range map (p. 129), and reiterate in the text (p. 137), that the breeding range of the western Monarch population is the “valleys of the Rocky Mountains,” by implication exclusively? Anyone finding Monarch larvae in his back yard in the Great Basin, California or the Pacific Northwest would be justified, based on this book, in thinking he had a major range extension in hand. Over 25 years ago I watched Monarchs migrating north through Albuquerque, New Mexico in May; yet Urquhart doesn’t show them in that state *at all*. Indeed, one gets the impression he credits no data not gathered by himself, and consults as few published sources as he can get away with.

Quite a few of the citations in the short bibliography are incorrectly given. There is no such journal as the *Journal of the Lepidoptera Society*, used repeatedly. The heading “scientific papers” embraces both legitimate papers in refereed journals and popular articles in *National Geographic*.

In Appendix B Urquhart provides a list of butterfly species tagged by his observer network, and concludes that—except for three conspicuous, well-known migrants on the Gulf Coast—the Monarch is our only true long-distance migrant. Most of the species he lists have never been suspected of long-distance migration by anyone not under the influence of mind-altering substances. Of those that have, most probably *are* seasonal migrants. Certainly the Painted Lady (*Vanessa cardui*) is. Since Urquhart does not describe the design of his tagging schemes, let alone give numbers tagged, seasons, or circumstances, there is no way to evaluate the effectiveness of his methods or their probability of generating returns. Again, the unsophisticated will be misled by glib rhetoric.

This is an infuriating book. One wants to be nice to the grand old man who tracked the Monarch to its lair, but how can one ignore his pigheadedness and egocentricity? Except for the scrambled order of states in Appendix C, this is a beautifully-produced book, nearly free of typographical errors; its production values are better than its

content. It has numerous color plates, expensive to produce and utterly unnecessary; most lovingly reproduce all the flaws in series of badly-mounted Monarchs to no obvious purpose. How typical! What a pity!—*Arthur M. Shapiro, Department of Zoology, University of California, Davis, California 95616.*

## LITERATURE CITED

Ackery, P. R. and R. I. Vane-Wright. 1984. *Milkweed Butterflies*. Cornell University Press, Ithaca, New York, 426 pp.

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**The Butterflies of Indiana.**—Ernest M. Shull. 1987. Indiana University Press, viii + 262 pp., 50 pls. \$25.00 cloth.

In the past several years there have been a number of publications on the butterflies of various states, and more are to be published. Some leave quite a bit to be desired, while others stand out as examples of how these should be done. Shull's work on the Indiana fauna definitely falls in the latter category, and is perhaps the best state compendium that I have seen.

The introduction includes sections on the biogeographical areas of Indiana (with an accompanying map), biology in the broad sense (including color patterns, mimicry, migration, and the sap-feeding species), collecting, classification and identification (plus a list of the major museums and collections in North America), plus conservation and the endangered species act. The bulk of the book is taken up with the species accounts, giving diagnoses, distribution (having a state map showing the counties in the margin beside each species) and habitat, plus life history notes. Food plants are given for each species where known; these are not restricted to just Indiana. Shull has spent some three decades collecting in Indiana, and so he is well qualified to comment on the occurrence, nectaring, and flight habits; he lists every pair of mating butterflies he has observed, complete with locality, time and temperature data. These observations add welcome information for the 149 species known to fly in Indiana.

Interspersed in the text are the colored photographic plates that show every species of skipper and true butterfly; 535 specimens are illustrated, with both sexes and the under surface of the wings usually being given. In general, the color work is excellent; in a few cases the red appears to be a bit too strong, and there are a few small dark spots on a number of the plates.

At the end is a check list of the species, a "hypothetical list" of butterflies that may show up in the state (one more possible addition might be *Phyciodes pascoensis/morpheus*), a short glossary, the literature cited, and separate indices to food plants and the butterflies.

A couple of minor errors might be pointed out, such as "genuses" in the caption for figure 4, and Shull's statement that the Cabbage White is the only Indiana butterfly that has been found in all 92 counties, although its presence is not indicated on the accompanying map for De Kalb County.